202

5.3

HW p258 13-17 (not 15) 19, 21, 22

13. Assum $\overline{PQ} \cong \overline{ST}$

14. Assum $x < 4$ or $x = 4$ [or $x \leq 4$ or $x \not> 4$]

16. Assum a median of a $\triangle$ is not also an altitude

17. Assum points P, Q & R are not collinear.

19. Given: $\frac{1}{a} < 0$

P: a is negative

Assum a is positive or a is zero

Then $\frac{1}{a}$ is positive * Contradicts given

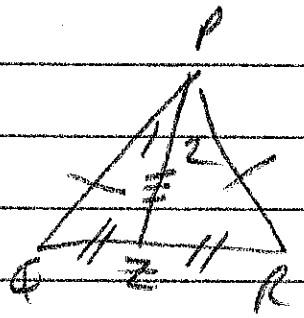
Then $\frac{1}{a}$ Does not exist * Contradicts given

Our assumptions are false.

∴ a is negative

21. G: $\overline{PQ} \cong \overline{PR}$ $\angle 1 \not\cong \angle 2$

P: $\overline{PZ}$ is not median $\triangle PQR$



Assume $\overline{PZ}$ is the median of $\triangle PQR$

Then $\overline{QZ} \cong \overline{RZ}$ (by def of median)

Then $\overline{PZ} \cong \overline{PZ}$ by Reflexive prop

Then $\triangle PQZ \cong \triangle PRZ$ by SSS (* $\angle 1 \cong \angle 2$ by CPCTC * Contradicts given

Our assumption is false ∴ $\overline{PZ}$ is not the median $\triangle PQR$

22. G: $m\angle 2 \neq m\angle 1$ — $\frac{1}{3}$ — ℓ

P: $\ell \not\parallel m$ — $\frac{2}{3}$ — m

Assum $\ell \parallel m$

Then $\angle 1 \cong \angle 2$ b/c If ||, corr $\angle$s are $\cong$ Then $m\angle 1 = m\angle 2$ by def $\cong$.

~~$\cong$~~ contradicts given

Our assumption is false

$\therefore \ell \not\parallel m$